



## SOX9 is required for maintenance of the pancreatic progenitor cell pool.

Journal: Proc Natl Acad Sci U S A

Publication Year: 2007

Authors: Philip A Seymour, Kristine K Freude, Man N Tran, Erin E Mayes, Jan Jensen, Ralf Kist, Gerd

Scherer. Maike Sander

PubMed link: 17267606

Funding Grants: Stem Cell Research Training Grant

**Public Summary:** 

## Scientific Abstract:

The factors necessary to maintain organ-specific progenitor cells are poorly understood and yet of extreme clinical importance. Here, we identify the transcription factor SOX9 as the first specific marker and maintenance factor of multipotential progenitors during pancreas organogenesis. In the developing pancreas, SOX9 expression is restricted to a mitotically active, Notch-responsive subset of PDX1(+) pluripotent progenitors and is absent from committed endocrine precursors or differentiated cells. Similar to Notch mutations, organ-specific Sox9 inactivation in mice causes severe pancreatic hypoplasia resulting from depletion of the progenitor cell pool. We show that Sox9 maintains pancreatic progenitors by stimulating their proliferation, survival, and persistence in an undifferentiated state. Our finding that SOX9 regulates the Notch-effector HES1 suggests a Notch-dependent mechanism and establishes a possible genetic link between SOX factors and Notch. These findings will be of major significance for the development of in vitro protocols for cell replacement therapies.

## PNAS Lens Free Article Link:



Source URL: https://www.cirm.ca.gov/about-cirm/publications/soxg-required-maintenance-pancreatic-progenitor-cell-pool